

**USDA Service Center Initiative  
Geospatial Data Acquisition, Integration and Delivery  
Business Re-engineering Project**

**Data Themes - Outline - Hydrography RF3**

## **I. Acquisition**

### **A. Data Source**

#### **1. Producer Information**

##### **a. Name**

The U.S. Environmental Protection Agency's (USEPA) Reach Files are a series of national hydrologic databases that uniquely identify and interconnect the stream segments or "reaches" that comprise the country's surface water drainage system. The three versions of the Reach File that currently exist, known as RF1, RF2, and RF3-Alpha respectively, were created from increasingly detailed sets of digital hydrography data produced by the U.S. Geological Survey.

##### **b. Location of Headquarters**

STORET User Assistance  
U.S. Environmental Protection Agency  
401 M Street SW (4503F)  
Washington, DC 20460  
800-424-9067

##### **c. Internet Address**

<http://www.epa.gov>

#### **2. Publisher Information**

##### **a. Name**

The EPA publishes the Hydrography Reach Files. They are available through the National Geospatial Data Clearinghouse.

##### **b. Location of Headquarters**

STORET User Assistance  
U.S. Environmental Protection Agency  
401 M Street SW (4503F)  
Washington, DC 20460  
800-424-9067

##### **c. Internet Address**

The internet address of the EPA is [www.epa.gov](http://www.epa.gov)  
The internet address of the clearinghouse is [www.nsdi.epa.gov](http://www.nsdi.epa.gov)

#### **3. Acquisition Information**

##### **a. Delivery Media**

The Hydrography Reach Files are available on CD-ROM and through:  
<http://www.epa.gov/OST/BASINS/>

b. Download URL

<http://www.epa.gov/OST/BASINS/gisdata.html>

c. Projected Data Availability Schedule

RF3-Alpha is now complete for 45 of the 48 contiguous states and Hawaii. In its present form, RF3-Alpha includes nearly 3,200,000 reaches representing streams, wide rivers, reservoirs, lakes, a variety of miscellaneous hydrographic features, and the coastal shorelines for the Atlantic and Pacific Oceans, the Great Lakes, the Gulf of Mexico and the Hawaiian Islands.

## **B. Standards Information**

### **1. Geospatial Data Standard**

a. Standard Name and Steward Information

EPA's Office of Water RF3 is being developed by EPA's Office of Water to provide a nationally consistent database to promote comparability for national, regional, and state reporting requirements such as those found in 305(b) and other sections of the Clean Water Act.

The RF3 compilation was performed on a catalog unit basis. The DLG and GNIS files were divided into CU-based subsets using the 1:2,000,000 scale Catalog Unit Boundaries. The first step was to network the DLG3. This process put the DLG3 lines in a hydrologic network, assigned temporary "reach" identifiers and built a preliminary set of navigation attributes. The major and minor attribute codes contained in the DLG3 data were used to determine feature types and to assist in building the hydrologic network. No attempt was made to correct any errors that existed in the DLG3 attributes and, therefore, these errors are reflected in RF3-Alpha. After the downstream start point(s) were visually selected, an endpoint-to-endpoint method was used to find and connect all possible DLG lines into the network. DLG attribute codes were used to distinguish between single line streams, wide rivers, and lakes. Miscellaneous hydrography, such as point features and ditches and canals, were not networked, however, most of these features were included in RF3-Alpha and given reach codes. The next step in compilation was to overlay the RF2 onto the DLG network and transfer the RF2 reach codes, names, stream levels, and navigation attributes to the DLG network. The inter-CU reach connectivity was of particular importance because all of RF3-Alpha's inter-CU connections originated from RF1/RF2.

After the RF2 overlay, the GNIS file was overlaid to add names for the new RF3-Alpha reaches. This was similar to the RF2 overlay, except that it was performed on a named-feature-by-named-feature basis. The names assigned to reaches in RF1 and RF2 were not changed during this overlay. Only reaches that were newly added by DLG hydrography were candidates to receive names.

b. Standard Version

c. Standard URL

## 2. Metadata Standard

### a. Standard Name and Steward Information

Standard Name: FGDC Content Standards for Digital Geospatial Metadata  
Metadata Standard Version: 19940608

The metadata contact is:  
USEPA Office of Water/OST/SASD Basins  
401 M Street, SW Mail Stop 4305  
Washington, District of Columbia 20460  
(202) 260-7301

### b. Description of Metadata Captured

The metadata is available online at  
<http://www.epa.gov/ostwater/BASINS/metadata/rf3a.htm>

The sections of metadata include:  
Identification Information  
Data Quality Information  
Spatial Reference Information  
Entity and Attribute Information  
Distribution Information  
Metadata Reference Information

### c. Metadata Accuracy and Completeness Assessment

The metadata is complete.  
For further assistance on RF3 Alpha, please contact STORET User Assistance at  
800-424-9067.

## C. Acquired Data Structure

### 1. Geospatial Data Format

#### a. Format (raster, vector, etc.)

The ARC/INFO format of the RF3-Alpha data is in a standard ARC/INFO ASCII export format. With the release of Basins version 2, the RF3 ArcInfo coverages were converted into ArcView shapefiles.

#### b. Format Name

ASCII export format

#### c. Data Extent

West Bounding Coordinate: -159.0000  
East Bounding Coordinate: -65.0000  
North Bounding Coordinate: 50.0000  
South Bounding Coordinate: 17.0000

#### d. Horizontal and Vertical Resolution

Latitude Resolution: 0.0001  
Longitude Resolution: 0.0001

e. Absolute Horizontal and Vertical Accuracy

National map accuracy standards for 1:100,000 scale map.

f. Nominal Scale

1:12,000

g. Horizontal and Vertical Datum

Horizontal Datum Name: North American Datum of 1983  
Ellipsoid Name: Geodetic Reference System 80  
Semi-major Axis: 6,378,137  
Denominator of Flattening Ratio: 298.257

h. Projection

None-Geographic

i. Coordinate Units

decimal degrees

j. Average Data Set Size

The USEPA RF3 will vary in size depending on the area of choice.

k. Symbology

None

## 2. Attribute Data Format

a. Format Name

The ARC/INFO format of the RF3-Alpha data is in a standard ARC/INFO ASCII export format and may be used to load RF3-Alpha data into ARC/INFO using the IMPORT command.

b. Database Size

The USEPA RF3 will vary in size depending on the area of choice.

## 3. Data Model

a. Geospatial Data Structure

None

b. Attribute Data Structure

See Below

c. Database Table Definition

File Name: <cover>.DS3

Column	Item Name	Width	Type	# Decimals
1.1	CU	8	Integer	
2.9	SEG	4	Integer	
3.13	MI	5	Character	
4.18	UPMI	5	Character	
5.23	RFLAG	1	Character	
6.24	OWFLAG	1	Character	
7.25	TFLAG	1	Character	
8.26	SFLAG	1	Character	
9.27	REACHTYPE	1	Character	
10.28	LEVEL	2	Integer	
11.30	JUNC	2	Integer	
12.32	DIVERGENCE	1	Integer	
13.33	USDIR	1	Character	
14.34	TERMID	5	Integer	
15.39	TRMBLV	1	Integer	
16.40	PNAME	30	Character	
17.70	PNMCD	11	Character	
18.81	CNAME	30	Character	
19.111	CNMCD	11	Character	
20.122	OWNAME	30	Character	
21.152	OWNMCD	11	Character	
22.163	DSCU	8	Integer	
23.171	DSSEG	4	Integer	
24.175	DSMI	5	Character	
25.180	CCU	8	Integer	
26.188	CSEG	4	Integer	
27.192	CMI	5	Character	
28.197	CDIR	1	Character	
29.198	ULCU	8	Integer	
30.206	ULSEG	4	Integer	
31.210	ULMI	5	Character	
32.215	URCU	8	Integer	
33.223	URSEG	4	Integer	
34.227	URMI	5	Character	
35.232	SEGL	6	Numeric	2
36.238	RFORGLAG	1	Integer	
37.239	ALTPNMCD	8	Integer	
38.247	ALTOWNMC	8	Integer	
39.255	DLAT	8	Numeric	4
40.263	DLONG	8	Numeric	4
41.271	ULAT	8	Numeric	4
42.279	ULONG	8	Numeric	4
43.287	MINLAT	8	Numeric	4
44.295	MINLONG	8	Numeric	4
45.303	MAXLAT	8	Numeric	4
46.311	MAXLONG	8	Numeric	4
47.323	LN1AT2	4	Integer	
48.327	LN2AT2	4	Integer	
49.331	AR1AT2	4	Integer	
50.335	AR1AT4	4	Integer	
51.339	AR2AT2	4	Integer	
52.343	AR2AT4	4	Integer	
53.347	UPDATE1	6	Character	

54.353	UPDTC1	8	Character
55.361	UPDTSRC1	8	Character
56.369	UPDATE2	6	Character
57.375	UPDTC2	8	Character
58.383	UPDTSRC2	8	Character
59.391	UPDATE3	6	Character
60.397	UPDTC3	8	Character
61.405	UPDTSRC3	8	Character
62.413	DIVCU	8	Integer
63.421	DIVSEG	4	Integer
64.425	DIVMI	5	Character
65.430	DLGID	6	Integer
66.436	filler	7	Character
**			
Redefined			
Items **			
67.1	RF3RCHID	17	Character
68.163	DSRF3RCHID	17	Character
69.180	CURF3RCHID	17	Character
70.198	ULRF3RCHID	17	Character
71.215	URRF3RCHID	17	Character
72.413	DIVRF3RCHID	17	Character

d. Data Relationship Definition

N/A

e. Data Dictionary

CU	Cataloging Unit
SEG	Segment Number
MI	Marker Index
UPMI	Upstream Marker Index
RFLAG	Reach Flag (0,1)
OWFLAG	Open Water Flag (0,1)
TFLAG	Terminal Flag (0,1)
SFLAG	Start Flag (0,1)
REACHTYPE	Reach Type Code
LEVEL	Stream Level
JUNC	Level of Downstream Reach
DIVERGENCE	Divergence Code
USDIR	Upstream Direction of main path
TERMIN	Terminal Stream ID [future use]
TRMBLV	Terminal Base Level [future use]
PNAME	Primary Name
PNMCD	Primary Name Code
CNAME	Common Name
CNMCD	Common Name Code
OWNAME	Open Water Name
OWNMCD	Open Water Name Code
DSCU	Downstream CU
DSSEG	Downstream SEG
DSMI	Downstream MI

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CCU	Complement CU
CSEG	Complement SEG
CMI	Complement MI
CDIR	Complement Direction
ULCU	Upstream Left CU
ULSEG	Upstream Left Seg
ULMI	Upstream Left Mi
URCU	Upstream Right CU
URSEG	Upstream Right Seg
URMI	Upstream Right MI
SEGL	Reach Length (miles)
RFORGLAG	RF Origin flag (1,2,3)
ALTPNMCD	Alt. Primary Name Code [future use]
ALTOWNMC	alt. OW Name Code [future use]
DLAT	Downstream Latitude
DLONG	Downstream Longitude
ULAT	Upstream Latitude
ULONG	Upstream Longitude
MINLAT	Minimum Latitude
MINLONG	Minimum Longitude
MAXLAT	Maximum Latitude
MAXLONG	Maximum Longitude
LN1AT2	DLG line Attribute 1
LN2AT2	DLG line Attribute 2
AR1AT2	DLG Area attribute
AR1AT4	DLG Area attribute
AR2AT2	DLG Area attribute
AR2AT4	DLG Area attribute
UPDATE1	Update Date #1(mmddyy)
UPDTCD1	Update type Code #1
UPDTSRC1	Update Source #1
UPDATE2	Update Date #2(mmddyy) [future use]
UPDTCD2	Update Type Code #2 [future use]
UPDTSRC2	Update Source #2 [future use]
UPDATE3	Update Date #3(mmddyy) [future use]
UPDTCD3	Update Type Code #3 [future use]
UPDTSRC3	Update Source #3 [future use]
DIVCU	Divergent CU
DIVSEG	Divergent SEG
DIVMI	Divergent Mi
DLGID	DLG number ( special use )
filler	Filler [future use]

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For a more detailed data dictionary go to this site:  
<http://www.epa.gov/OWOW/NPS/rf/techref.html>

## **D. Policies**

### **1. Restrictions**

#### **a. Use Constraints**

None.

#### **b. Access Constraints**

None.

c. Certification Issues

None.

2. Maintenance

a. Temporal Information

RF3-Alpha is now complete for 45 of the 48 contiguous states and Hawaii.

b. Average Update Cycle

Unknown.

**E. Acquisition Cost**

1. Cooperative Agreement

a. Description of Agreement

None

b. Status of Agreement

N/A

2. Cost to Acquire Data

None, assuming it is acquired via ftp.

**II. Integration**

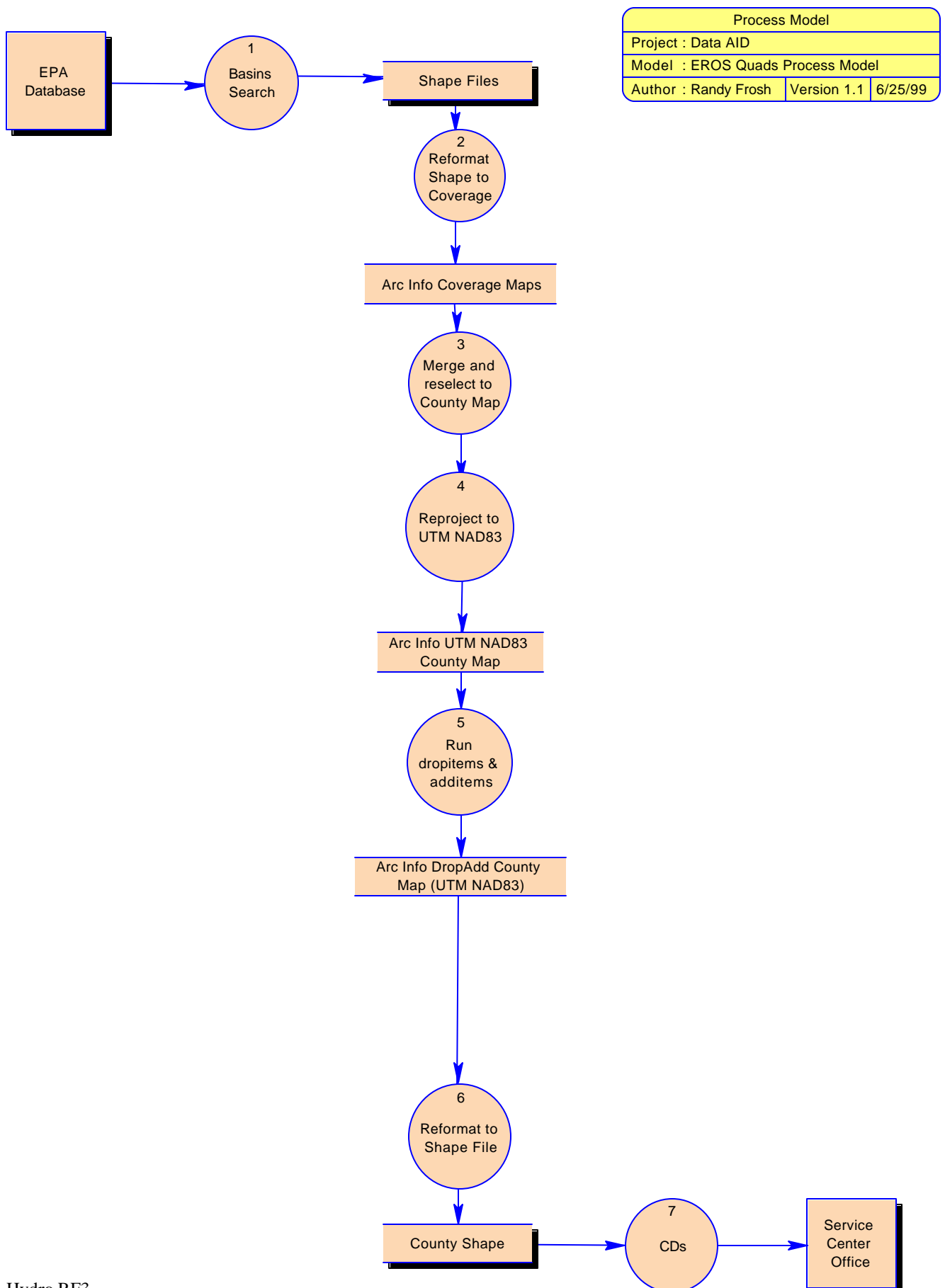
**A. Value Added Process**

1. Benefit to the Service Center

The USEPA RF3 is a ArcView 3.0 shapefile (geo\_nad83). If a Service Center wanted to use the RF3 data, it would have to perform the conversion. In addition, the RF3 data is tiled by county and reprojected to the appropriate UTM zone. Without these processes, the service center would have to remove unwanted data and reproject the data from geographic if they wanted to view or analyze the data with other UTM spatial data. This file can be used with other theme data for analysis and location purposes.

2. Process Model

a. Flow Diagram



1. Download data from Web Site
2. Reformat to Coverage
3. Extract County Data
4. Reproject
5. Reformat to Shape File Name of Shape File: hydro\_rf.shp
6. Cut the CD-ROM
7. Mail the CD-ROM to the Service Center Office

b. Process Description

- The Hydrography RF3 is downloaded from the EPA web site ( <http://www.epa.gov/OST/BASINS/gisdata.html> )
- The shapefiles are converted to arc/info coverages and appended together.
- The coverage is then reselected in order to get only the specific county data.
- The coverage is then reprojected from geo to UTM nad83.
- The coverage is then made into a shape file.
- The shape file is put with the other theme data and then a CD-ROM is cut.
- The CD-ROM is sent to the Service Center Sites.

### 3. Technical Issues

a. Tiling

The RF3 compilation was performed on a catalog unit basis.  
This is changed to a county tiling scheme.

b. Compression

None

c. Scale

RF3-Alpha, the initial output of the RF3 production process, was constructed from four data sources:

EPA Reach File, Version 2.0 (RF2)  
USGS 1:2,000,000 Catalog Unit (CU) Boundaries  
USGS Geographic Names Information System, Version I (GNIS)  
USGS 1:100,000 Scale Digital Line Graph, Version 3, Optional Format (DLG3)

d. Tonal Matching

N/A

e. Edge-matching

The DLG data were received from USGS in approximately 54,000 files on 241 9-track magnetic tapes. These files, one for each 7.5-minute quadrangle, were consolidated into a single contiguous file on EPA's IBM mainframe computer. Software was developed for processing this very large database in preparation for overlaying it with RF2 and GNIS. Two basic steps were performed to prepare the DLG data. The first step concatenated DLG lines when their end points were coincident and their attributes were the same. The second step combined DLG lines, which were within a given tolerance. At map edges, an initial tolerance of .0003 degrees was applied, then .0006, .0012, and finally .0024 until one and only one other

DLG line was found within the search radius. If at any point more than one other DLG line was found, the concatenation was deferred to a later interactive step.

Within a map, the tolerances of .0003, .0006, and .0012 were used. As DLG lines were concatenated, the order of DLG coordinates was changed, as needed, to ensure that the trace for the new, longer DLG line progressed consistently from one end to the other.

#### 4. Quality Control

##### a. Procedures

The Production Process is now in the Assessment Phase of Validation. This phase consists of gathering "hard" documentation of user feedback and performing many automated QA/QC checks on the data. The first objective of Assessment is to learn as much as possible about the problems in the data and develop approaches to correct them. Recognizing that some problems that will not be correctable during this centralized validation process due to the lack of local knowledge, the second objective is to create documentation datasets for each catalog unit (CU) that contain CU-level and feature-level information about the data content. These "metadata" will be bundled with the spatial data comprising RF3 to provide users with an understanding of the current data lineage. With this information in hand, those users that are more knowledgeable about their local waters will be better prepared to correct and enhance RF3.

##### b. Acceptance Criteria

#### 5. Data Steward

##### a. Name and Organization

Currently, the data steward for the Hydrography RF3 data is:

National Cartography and Geospatial Center  
Natural Resources Conservation Service  
US Department of Agriculture  
501 Felix Street, Building 23  
P.O. Box 6567  
Fort Worth, Texas 76115-0567 USA

If the integration procedure can be automated, the steward would optimally remain:

STORET User Assistance  
U.S. Environmental Protection Agency  
401 M Street SW (4503F)  
Washington, DC 20460  
800-424-9067

##### b. Responsibilities

The RF3-Alpha data is un-validated and given the nature of the shortcomings that have been identified in the RF3-Alpha data and the re-design work that is being incorporated into RF3 validation to support GIS applications, it is recommended that a conservative approach be taken when processing and applying these data. The final, validated RF3 will provide a much improved data product. In the mean time, access to the provisional Alpha data, accompanying documentation, and technical

support is provided through the Office of Water's (OW) STORET User Assistance Group. STORET, EPA's national water quality data system, is currently undergoing a major re-design to address evolving user requirements and technology advancements including GIS. Both STORET and RF3 will play integral roles in EPA's future water quality data collection, analysis, and reporting activities. RF3-Alpha data requests should be directed to STORET User Assistance 800-424-9067.

## ***B. Integrated Data Structure***

### **1. Geospatial Data Format**

#### **a. Format (raster, vector, etc.)**

Vector

#### **b. Format Name**

ESRI shape file and Arc/Info coverage.

#### **c. Data Extent**

Individual county

#### **d. Horizontal and Vertical Resolution**

Same as source data.

#### **e. Absolute Horizontal and Vertical Accuracy**

Same as source data.

#### **f. Nominal Scale**

Same as source data.

#### **g. Horizontal and Vertical Datum**

The horizontal datum is the North American Datum ( NAD ) 83. The vertical datum is mean sea level.

#### **h. Projection**

Universal Transverse Mercator ( UTM ), North American Datum (NAD 83)

#### **i. Coordinate Units**

Meters

#### **j. Symbology**

Blue solid line.

### **2. Attribute Data Format**

#### **a. Format Name**

ESRI Shape file

b. Database Size

The data per county will vary in size.

3. Data Model

a. Geographic Data Structure

Line Files		Text Files	
map shp	shp file	map shp	shp file
map dbf	dbf file	map dbf	dbf file
map shx	shx file	map shx	shx file
map sbn	sbn file	map sbn	sbn file
map sbx	sbx file	map sbx	sbx file

b. Attribute Data Structure

See below.

c. Database Table Definition

FNODE#	6
TNODE#	8
LPOLY#	0
RPOLY#	0
LENGTH	187.24276
HYDRO_RF	2
HYDRO_RF-ID	790
FNODE_	1162
TNODE_	1164
LPOLY_	0
RPOLY_	0
CU	2060010
SEG	14
MI	0.00
UP	-1
DOWN	0
LENGTH_M	19682.72
RF3RCHID	2060010140.00
CUA	2060010
SEGA	14
MIA	0.00
UPMI	5.06
RFLAG	0
OWFLAG	0
TFLAG	0
SFLAG	0
REACHTYPE	C
LEVEL	0
JUNC	0
DIVERGENCE	0
USDIR	
TERMID	0
TRMBLV	0
PNAME	ISLE OF WIGHT BAY
PNMCD	2060010005

CNAME	
CNMCD	
OWNAME	
OWNMCD	0
DSCU	2060010
DSSEG	12
DSMI	3.47
CCU	2060010
CSEG	1316
CMI	0.00
CDIR	
ULCU	2060010
ULSEG	14
ULMI	5.06
URCU	2060010
URSEG	15
URMI	0.00
SEGL	14.58
RFORGFLAG	1
ALTPNMCD	0
ALTOWNMC	0
DLAT	38.4625
DLONG	75.0670
ULAT	38.4608
ULONG	75.0945
MINLAT	38.4455
MINLONG	75.0628
MAXLAT	38.4683
MAXLONG	75.0945
NDLGREC	3
LN1AT2	200
LN2AT2	0
AR1AT2	0
AR1AT4	0
AR2AT2	116
AR2AT4	0
UPDATE1	011597
UPDTCD1	pcrf8rf3
UPDTSRC1	100KDLG
UPDATE2	R
UPDTCD2	
UPDTSRC2	
UPDATE3	11397
UPDTCD3	
UPDTSRC3	
DIVCU	0
DIVSEG	0
DIVMI	00.00
DLGID	1430
FILLER	
DSRF3RCHID	2060010123.47
CURF3RCHID	206001013160.00
ULRF3RCHID	2060010145.06

URRF3RCHID	2060010150.00
DIVRF3RCHI	0000.00

d. Data Relationship Definition

e. Data Dictionary

FNODE#	Internal sequence number of the from-node.
TNODE#	Internal sequence number of the to-node.
LPOLY#	Internal sequence number of the left polygon: set to coverage does not contain polygons.
RPOLY#	Internal sequence number of the right polygon: set to coverage does not contain polygons.
LENGTH	Length in coverage units.
HYDRO_RF#	Internal sequence number ( i.e., the record number ) of arc in the ARC file.
HYDRO_RF-ID	User-assigned feature ID.
FNODE_	From node
TNODE_	To node
LPOLY_	Internal number of the polygon on the left
RPOLY_	Internal number of the polygon on the right.
CU	Cataloging Unit
SEG	Segment Number
MI	Marker Index - refer to RF3a Technical Documentation
UP	Value for the IMPEDANCE command in ARC network commands such as PATH, ALLOCATE, and TOUR. To restrict the network traversal to upstream only, use IMPEDANCE DOWN UP. To restrict to downstream traversal, use IMPEDANCE UP DOWN.
DOWN	Value for the IMPEDANCE command in ARC network commands such as PATH, ALLOCATE, and TOUR. To restrict the network traversal to upstream only, use IMPEDANCE DOWN UP. To restrict to downstream traversal, use IMPEDANCE UP DOWN.
LENGTH_M	Reach length in meters
RF3RCHID	Unique river reach identifier concatenated from CU, SEG, and MI
CUA	Cataloging Unit
SEGA	Segment Number
MIA	Marker Index
UPMI	Upstream marker index
RFLAG	Reach Flag
OWFLAG	Open Water Flag
TFLAG	Terminal flag
SFLAG	Start flag
REACHTYPE	Reach type code
LEVEL	Stream level
JUNC	Level of downstream reach

DIVERGENCE	Divergence code
USDIR	Upstream direction of main path
TERMID	Terminal stream ID ( future use )
TRMBLV	Terminal base level ( future use )
PNAME	Primary name
PNMCD	Primary name code
CNAME	Common name
CNMCD	Common name code
OWNAME	Open water name
OWNMCD	Open water name code
DSCU	Downstream CU
DSSEG	Downstream SEG
DSMI	Downstream MI
CCU	Complement CU
CSEG	Complement SEG
CMI	Complement MI
CDIR	Complement direction
ULCU	Upstream left CU
ULSEG	Upstream left SEG
ULMI	Upstream left MI
URCU	Upstream right CU
URSEG	Upstream right SEG
URMI	Upstream right MI
SEGL	Reach length ( Miles )
RFORGFLAG	RF origin flag
ALTPNMCD	Alternate primary name code ( future use )
ALTOWNMC	Alternate OW name code ( future use )
DLAT	Downstream latitude
DLONG	Downstream longitude
ULAT	Upstream latitude
ULONG	Upstream longitude
MINLAT	Minimum latitude
MINLONG	Minimum longitude
MAXLAT	Maximum latitude
MAXLONG	Maximum longitude
NDLGREC	Number of DLG records
LN1AT2	DLG line attribute 1
LN2AT2	DLG line attribute 2
AR1AT2	DLG area attribute
AR1AT4	DLG area attribute
AR2AT2	DLG area attribute
AR2AT4	DLG area attribute
UPDATE1	Update data # 1
UPDTCD1	Update type code # 1
UPDTSRC1	Update source # 1
UPDATE2	Update date # 2 ( future use )
UPDTCD2	Update type code # 2 ( future use )
UPDTSRC2	Update source # 2 ( future use )
UPDATE3	Update Date # 3 ( future use )
UPDTCD3	Update type code # 3 (future use )
UPDTSRC3	Update source # 3 ( future use )
DIVCU	Divergent CU
DIVSEG	Divergent SEG

DIVMI	Divergent MI
DLGID	DLG number ( special use )
FILLER	Filler ( future use )
DSRF3RCHID	Unique downstream reach identifier
CURF3RCHID	Unique complement reach identifier
ULRF3RCHID	Unique upstream left reach identifier
URRF3RCHID	Unique upstream right reach identifier
DIVRF3RCHI	Unique divergent reach identifier

### **C. Resource Requirements**

#### **1. Hardware and Software**

To acquire the Hydrography RF3 data, it requires a UNIX or NT machine with approximately 50 MB of disk.

#### **2. Staffing**

It would take a couple of staff members and about a month to acquire the entire Hydrography RF3 database from the EPA ftp site. (Web Site)

### **D. Integration Cost**

#### **1. Hardware and Software**

In order to reformat, reproject and tile the data, the USDA requires:  
 ARC/INFO on UNIX or NT platform  
 ARCVIEW on NT platform  
 2 GB disk

#### **2. Staffing**

The procedure is currently not 100% automated. If it was automated, this procedure would require personnel only to check the results of the procedure as well as the data. A rough estimate for fully automating the procedure is one programming staff member for 5 to 10 days.

## **III. Delivery**

### **A. Specifications**

#### **1. Directory Structure**

- a. Folder Theme Data is Stored In

\Hydrography ( V 5.0 )

#### **2. File Naming Convention**

- a. List of Theme Files and The File Naming Convention

\hydro\_rf.dbf  
 \hydro\_rf.shx  
 \hydro\_rf.shp

\hydrorf\_txt.dbf  
 \hydrorf\_txt.shx  
 \hydrorf\_txt.shp

## **B. User Information**

### **1. Accuracy Assessment**

#### **a. Alignment with Other Theme Geospatial Data**

Will align fairly well with other data themes.

#### **b. Content**

### **2. Appropriate Uses of the Geospatial Data**

#### **a. Display Scale**

The original data source scale or smaller, usually 1:24,000.

#### **b. Plot Scale**

The original data source scale or smaller, usually 1:24,000.

#### **c. Area Calculations**

N/A

#### **d. Decision Making**

## **C. Maintenance and Updating**

### **1. Recommendations and Guidelines**

#### **a. Frequency of Updates**

In order of preference:

- Extract the data from the EPA clearinghouse, at the time of request for the data. Perform the data integration in an automated fashion. Therefore, no updates are required because EPA would not be the data steward.
- To coincide with EPA updates, if notification is a possible from EPA
- At a regular interval of 3 months, 6 months or 12 months, depending on budget

#### **b. Location for the Theme Data to be Maintained**

In order of preference:

- At the USEPA, with USEPA as the data steward
- At the USDA data warehouse, potentially in Fort Worth

#### **c. Maintenance and Updating Procedures Overview**

Follow the integration procedure listed above for each update if it is not done at the time of request of the data.